

C.) REMARKS

This Response is filed in response to the Final Office Action dated November 30, 2006.

Upon entry of this Response, claims 1-28 will be pending in the Application.

In the outstanding Final Office Action, the Examiner withdrew from consideration claims 3-14 and 17-28; rejected claims 1, 2, 15 and 16 under 35 U.S.C. 102(b) as being anticipated by Poliansky (U.S. Patent No. 2,732,124); and rejected claims 1, 2, 15 and 16 under 35 U.S.C. 102(b) as being anticipated by Massie (U.S. Patent No. 5,409,356).

Rejection under 35 U.S.C. 102

a. Rejection of claims as being anticipated by Poliansky

The Examiner rejected claims 1, 2, 15 and 16 under 35 U.S.C. 102(b) as being anticipated by Poliansky (U.S. Patent No. 2,732,124), hereinafter referred to as "Poliansky."

Specifically, the Examiner stated that

Poliansky discloses reciprocating compressor comprising: a linear motor (column 4, lines 1+) at least one piston (Figure 2, item 8) and cylinder arrangement (Figure 1, item 2), the piston and cylinder arrangement comprising a cylinder, a piston configured and disposed to travel in the cylinder and a piston rod connected to the piston; and a mechanism (Figure 1, item 18) operatively connecting the linear motor to the at least one piston and cylinder arrangement to move the piston in the cylinder upon operation of the linear motor, the mechanism having a mechanical configuration to limit overtravel and undertravel of the piston in the cylinder; wherein the mechanism comprises a connecting rod (Figure 1, item 11) and eccentric (see note).

(Note:

1.) Examiner is interpreting "a mechanical configuration between a motor and a piston to limit overtravel and undertravel of the piston in the cylinder", as being any mechanical linkage that is used to attach the motor to the piston

Applicants respectfully traverses the rejection of claims 1, 2, 15 and 16 under 35 U.S.C. 102(b).

Poliansky, as understood, is directed to an air or gas compressor having at least one pair of compressor heads combined, within one casing, with an electric means for driving the pistons of the compressor heads. The compressor has linear movements of at least one armature attracted alternately by two electro-magnets. The main object of the invention is to provide an improved gas compressor, where two electro magnets are used for operating the pistons of at least one pair of compressor heads, with the result that the usually employed electric motor and crank may be dispensed with and that the compressor structure is considerably simplified.

In contrast, independent claim 1, as amended, recites a reciprocating compressor having a linear motor including a rotor configured and disposed to move axially and at least one piston and cylinder arrangement including a cylinder, a piston configured and disposed to travel in the cylinder and a piston rod connected to the piston. Claim 1 also recites a mechanism operatively connecting the rotor of the linear motor to the piston rod to move the piston in the cylinder upon operation of the linear motor, and the mechanism having a mechanical configuration to operate as a motion stop for the linear motor thereby limiting overtravel and undertravel of the piston in the cylinder.

Independent claim 15, as amended, recites a mechanism to connect a rotor of a linear motor to a piston rod of a piston-cylinder arrangement, including a mechanical configuration to operate as a motion stop for the linear motor thereby limiting overtravel and undertravel of the piston in the cylinder.

The examiner is reminded that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.’ *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).” *See* Manual of Patent Examining Procedure, 8th Edition (MPEP), Section 2131.

In addition, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.’ *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).” *See* MPEP, Section 2131.

Several of the features recited by Applicant in independent claims 1 and 15 are not taught or suggested by Poliansky. First, Poliansky does not teach or suggest a mechanism having a

mechanical configuration to operate as a motion stop for the linear motor thereby limiting overtravel and undertravel of the piston in the cylinder as recited by Applicant in independent claims 1 and 15. The Examiner states that in Note 1 on page 2 of the Office Action that "a mechanical configuration between a motor and a piston to limit overtravel and undertravel of the piston in the cylinder" is interpreted as being any mechanical linkage that is used to attach the motor to the piston. This interpretation of the Examiner is clearly improper as not all mechanical linkages used to connect a linear motor and a piston would limit overtravel and undertravel of the piston in the cylinder. For example, a direct rigid connection between the rotor of a linear motor and the piston rod would clearly translate any overtravel and undertravel of the rotor to the piston rod and piston. Thus, the Examiner is requested to identify the specific mechanism in Poliansky connecting the rotor and the piston rod and explain how the mechanism operates to limit overtravel and undertravel of the piston in the cylinder. The piston rod used in Poliansky may be a connecting mechanism, but nowhere in Poliansky is it taught or suggested that the piston rod has a mechanical configuration to operate as a motion stop for the linear motor thereby limiting the overtravel and undertravel of the piston in the cylinder as Applicant recites in independent claims 1 and 15. In fact, the piston rods used in Poliansky are suggested to only extend through the central perforation of a disc removeably secured to the lower open end of the hollow piston (*See Poliansky, Col. 3:34-37*). Poliansky does not teach or suggest the use of the piston rod *having a mechanical configuration* for limiting the overtravel and undertravel of the piston in the cylinder. Simply because a piston rod is present in Poliansky, does not mean that it has a mechanical configuration for limiting the overtravel and undertravel of the piston in the cylinder as recited by Applicant in independent claims 1 and 15. The mechanism in the present invention is recited as having a mechanical configuration to operate as a motion stop for the linear motor thereby limiting the overtravel and undertravel of the piston in the cylinder, which Poliansky does not teach or suggest. In addition, the Examiner stated that

In response to applicant's arguments regarding claim 1, see page 4 of 8 of "Remarks", regarding a mechanism having a mechanical configuration to limit overtravel and undertravel of the piston in the cylinder. The applicant suggests that neither Massie nor Poliansky teach or suggest a mechanism for limiting overtravel and undertravel of

the piston in the cylinder. Examiner is interpreting any type of mechanical linkage, which is of a fixed dimension (i.e. a connecting rod), and mechanically attaches the motor to the piston would clearly limit the pistons travel distance. The applicant is reminded that the specification is entitled to reasonable consideration in ascertaining meaning of terminology of claims. However, disclosure cannot be relied upon during prosecution to impart unexpressed limitations into claim or to impart unexpressed restrictions on intangible claim language.

Applicant respectfully disagrees with the Examiner that the piston travel distance would be clearly limited simply because a mechanical linkage with a fixed dimension is mechanically attached. As discussed above, a mechanical linkage with a fixed dimension does not limit overtravel or undertravel of a piston when connected to a linear motor as there is no limit to the displacement i.e., the overtravel or undertravel, of the rotor in the linear motor. Further, Poliansky teaches having piston rods that project beyond their pivots for extending with their free ends [from the compressor cylinder] into small cylinders (Col. 4:43-44). In contrast, Applicant specifically recites in independent claims 1 and 15 having a mechanism that has a mechanical configuration to operate as a motion stop for the linear motor thereby limiting the overtravel and undertravel of the piston in the cylinder. The mechanism recited by Applicant is configured specifically to limit overtravel and undertravel of the piston, where the rod in Poliansky is neither designed nor configured to limit the motion of the rotor, but instead allows for an overextension of the rod (*See* Col. 4:43-44) and provides only for mechanical advantage of the compressor, not motion limitation.

Further, Poliansky does not teach or suggest the use of a linear motor comprising a rotor configured and disposed to move axially as recited in independent claims 1 and 15. Applicant cannot find language in Poliansky that teaches or suggests the use of a linear motor with a rotor disposed to move axially and control the overtravel and undertravel of the piston or connecting rod. The Examiner is requested to identify the specific passages in Poliansky that teaches or suggests a linear motor with a rotor that moves axially.

In addition, the Examiner states that disclosures cannot be relied upon during prosecution to impart unexpressed limitations into claim or to impart unexpressed restrictions on intangible claim language, however, the language relied upon by Applicant in the arguments and remarks are quoted directly from the independent and dependant claim language (*See* claims 1, 2, 15 and 16).

Thus, since Poliansky does not teach or suggest all of the limitations recited in independent claims 1 and 15, Applicant respectfully submits that Poliansky does not anticipate Applicant's invention as recited in independent claims 1 and 15.

Therefore, for the reasons given above, independent claims 1 and 15 are believed to be distinguishable from Poliansky and therefore are not anticipated nor rendered obvious by Poliansky.

Dependent claims 2 and 16 are believed to be allowable as depending from what are believed to be allowable independent claims 1 and 15 for the reasons given above. In addition, claims 2 and 16 recite further limitations that distinguish over the applied art. Specifically, dependant claim 2, as amended, recites a mechanism comprising a connecting rod eccentric mechanism. Poliansky does not teach or suggest a mechanism that is a connecting rod eccentric mechanism. The Examiner is requested to identify the specific passages in Poliansky that teaches or suggests a connecting rod eccentric mechanism. In conclusion, it is respectfully submitted that claims 1, 2, 15 and 16 are not anticipated nor rendered obvious by Poliansky and are therefore allowable.

b. Rejection of claims as being anticipated by Massie

The Examiner rejected claims 1, 2, 15 and 16 under 35 U.S.C. 102(b) as being anticipated by Massie (U.S. Patent No. 5,409,356), hereinafter referred to as "Massie."

Specifically, the Examiner stated that

Massie discloses reciprocating compressor (column 1, lines 8+) comprising: a linear motor (Figure 1, item 10); at least one piston and cylinder arrangement (Figure 1, item 17), the piston and cylinder arrangement comprising a cylinder, a piston configured and disposed to travel in the cylinder and a piston rod connected to the piston; and a mechanism (Figure 1, item 12) operatively connecting the linear motor to the at least

one piston and cylinder arrangement to move the piston in the cylinder upon operation of the linear motor, the mechanism having a mechanical configuration to limit overtravel and undertravel of the piston in the cylinder (See note 1); wherein the mechanism comprises a connecting rod (not labeled, however clearly seen in Figure 1) and eccentric (See note 2).

(Note:

1.) Examiner is interpreting "a mechanical configuration between a motor and a piston to limit overtravel and undertravel of the piston in the cylinder", as being any mechanical linkage that is used to attach the motor to the piston

2.) Eccentric is being interpreted as being the connector between 14 and 12 of Figure 1.

End Note)

Applicant respectfully traverse the rejection of claims 1, 2, 15 and 16 under 35 U.S.C. 102(b).

Massie, as understood, is directed to a well pumping system with a linear induction motor device. The linear induction motor is used to reciprocate the oil well rocker arm and then operate as a generator on the reverse stroke to reduce the chock loading. In addition, the generated electrical energy is returned to the well pumping system. This greatly reduces the maintenance costs of a conventional oil well and provides greater efficiency of the well pumping system.

In contrast, independent claim 1, as amended, recites a reciprocating compressor having a linear motor including a rotor configured and disposed to move axially and at least one piston and cylinder arrangement including a cylinder, a piston configured and disposed to travel in the cylinder and a piston rod connected to the piston as discussed in greater detail above.

Independent claim 15, as amended, recites a mechanism to connect a rotor of a linear motor to a piston rod of a piston-cylinder arrangement, as discussed in greater detail above.

Several of the features recited by Applicant in independent claims 1 and 15 are not taught or suggested by Massie. First, Massie does not teach or suggest a connecting rod having a mechanical configuration to operate as a motion stop for a linear motor thereby limiting the overtravel and undertravel of the piston in the cylinder as recited by Applicant in independent claims 1 and 15. The Examiner states that in Note 1 on Page 3 that the Examiner interprets "a

mechanical configuration between a motor and a piston to limit overtravel and undertravel of the piston in the cylinder" as being any mechanical linkage that is used to attach the motor to the piston. This interpretation by the Examiner is clearly improper as not all mechanical linkages used to connect a linear motor and a piston would limit overtravel and undertravel of the piston in the cylinder. For example, a direct rigid connection between the rotor of a linear motor and the piston rod would clearly translate any overtravel and undertravel of the rotor to the piston rod and piston. Thus, the Examiner is request to identify the specific mechanism in Massie connecting the rotor and the piston rod and explain how the mechanism operates to limit overtravel and undertravel of the piston in the cylinder. The connecting rod as recited in Massie is not labeled or suggested as having a special purpose or characteristic for being configured to limit the overtravel and undertravel of the piston in the cylinder as Applicant recites in independent claims 1 and 15. The mechanism in the present invention is recited as having a mechanical configuration to operate as a motion stop for the linear motor thereby limiting the overtravel and undertravel of the piston in the cylinder, which Massie does not teach or suggest. In addition, Massie does not teach or suggest the use of the connecting rod *having a mechanical configuration* for limiting the overtravel and undertravel of the piston in the cylinder as recited by Applicant in independent claims 1 and 15.

Further, Massie does not teach or suggest the use of a linear motor comprising a rotor configured and disposed to move axially as recited in independent claims 1 and 15. Massie does teach the use of a linear motor having stators that oscillate a rocker arm around a support pivot, but Applicant cannot find language in Massie that teaches or suggests the use of a linear motor with a rotor disposed to move axially and control the overtravel and undertravel of the piston or connecting rod. The Examiner is requested to identify the specific passages in Massie that teaches or suggests a linear motor with a rotor that moves axially as recited in independent claims 1 and 15.

In addition, the Examiner stated that:

In response to applicant's arguments regarding claim 1, see page 4 of 8 of "Remarks", regarding a mechanism having a mechanical configuration to limit overtravel and undertravel of the piston in the cylinder. The applicant suggests that neither Massie nor Poliansky teach or suggest a mechanism for limiting overtravel and undertravel of

the piston in the cylinder. Examiner is interpreting any type of mechanical linkage, which is of a fixed dimension (i.e. a connecting rod), and mechanically attaches the motor to the piston would clearly limit the pistons travel distance. The applicant is reminded that the specification is entitled to reasonable consideration in ascertaining meaning of terminology of claims. However, disclosure cannot be relied upon during prosecution to impart unexpressed limitations into claim or to impart unexpressed restrictions on intangible claim language.

Applicant respectfully disagrees with the Examiner that the piston travel distance would be clearly limited simply because a mechanical linkage with a fixed dimension is mechanically attached. As discussed above, a mechanical linkage with a fixed dimension does not limit overtravel or undertravel of a piston when connected to a linear motor, as there is no limit to the displacement of the rotor in the linear motor. Further, Massie teaches a rocker arm mechanism for connecting other mechanical elements (Col. 3: 5-18). More specifically, Massie teaches a rocker arm that merely provides a purpose of oscillating around a support pivot, and provides no limitation on the overtravel or undertravel (*see* claim 2). In fact, Massie teaches another element, a sucker rod string, which provides the movement limitation of the rocker arm, and the rocker arm having no direct effect or control of the movement (*see* claim 2). Massie mentions nothing of the rocker arm being mechanically configured for providing motion limitation as Applicant recites in independent claims 1 and 15, but in contrast, Massie merely discusses providing mechanical advantage by providing the rocker arm for connecting many other mechanical elements.

In addition, the Examiner states that disclosures cannot be relied upon during prosecution to impart unexpressed limitations into claim or to impart unexpressed restrictions on intangible claim language, however, the language relied upon by Applicant in the arguments and remarks are quoted directly from the independent and dependant claim language (*See* claims 1, 2, 15 and 16).

Thus, since Massie does not teach or suggest all of the limitations recited in independent claims 1 and 15, Applicant respectfully submits that Massie does not anticipate Applicant's invention as recited in independent claims 1 and 15.

Therefore, for the reasons given above, independent claims 1 and 15 are believed to be distinguishable from Massie and therefore are not anticipated nor rendered obvious by Massie.

Dependent claims 2 and 16 are believed to be allowable as depending from what are believed to be allowable independent claims 1 and 15 for the reasons given above. In addition, claims 2 and 16 recite further limitations that distinguish over the applied art. Specifically, dependant claim 2, as amended, recites a mechanism comprising a connecting rod eccentric mechanism. Poliansky does not teach or suggest a mechanism that is a connecting rod eccentric mechanism. In conclusion, it is respectfully submitted that claims 1, 2, 15 and 16 are not anticipated nor rendered obvious by Massie and are therefore allowable.

CONCLUSION

In view of the above, Applicant respectfully requests reconsideration of the Application and withdrawal of the outstanding objections and rejections. As a result of the amendments and remarks presented herein, Applicant respectfully submits that claims 1, 2, 15 and 16 are not anticipated by nor rendered obvious by Poliansky or Massie and thus, are in condition for allowance. As the claims are not anticipated by nor rendered obvious in view of the applied art, Applicant requests allowance of claims 1, 2, 15 and 16 in a timely manner. If the Examiner believes that prosecution of this Application could be expedited by a telephone conference, the Examiner is encouraged to contact the Applicant.

The Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 50-1059.

Respectfully submitted,
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